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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,801	04/05/2001	Ian David Johnson	A34186	4071

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EXAMINER	
HO, CHUONG T	
ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/826,801	JOHNSON ET AL.	
	Examiner	Art Unit	
	Chuong Ho	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 7* is/are rejected.

7)☒ Claim(s) *2-6 and 8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3, 4*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 1-8 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lau et al. (U.S.Patent 6,625,121 B1) in view of Chen et al. (U.S.Patent No. 5,544,332).

In the claim 1, Lau et al. discloses an apparatus and method for reducing congestion in network switching node. A congestion mask that indicates which of a plurality of destination node ports in a network switching node are congested is generated and combined with a destination port field included in a packet in a multicast queue of the switching node to mask destination port designations in the destination port field that are indicated by the congestion mask to be congested if a drop eligibility field within the packet indicates that destination port designations are permitted to be masked (see abstract); comprising:

A masking unit (REMSK) (Cell Path Arbiter 39, see figure 4) for use in a data packet switching system (see switching fabric, figure 2) of the type having a memoryless cross-bar switch (SM) providing cyclic connection (a time interval called a connection cycle, see col. 3, lines 30-36) between ingress routers ((INGRESS) LC1.....LC14, see figure 1) and egress routers ((EGRESS) LC1....LC14) (see figure 1), the ingress routers ((INGRESS) LC1...LC14) providing incoming packet buffering on a virtual output queue

(VOQ1...VOQ14) basis and being arranged to generate switch connection request when a virtual output queue contains a data packet (see col. 3, lines 55-60, arbitration logic is provided within the switching fabric 12 to arbitrate between the forwarding request from the different line card, granting some request and denying others), characterised in that the masking unit (Cell Path Arbiter 39) is arranged to receive all of the switch connection requests (see col. 3, lines 55-60, see figure 8, col. 8, lines 14-38). However, Lau et al. is silent to disclosing the masking unit randomly mask connection request (REQ).

See figure 3, Chen discloses a priority resolution and masking block 72 receive the request mask signal from deadlock detection and mask generator block 71. Priority resolution and masking block 72 also receives bus request signals (shown as busA_requests) from a master coupled to a first bus (bus A), as well as bus request (busB_request) signals and bus request enable signals (busB_request_enables) from master coupled to second (bus_B) (see col. 5, lines 1-10, figure 3); comprising:

the masking unit randomly mask connection request (REQ) (the random time mask provides the first master an opportunity to control the bus and access the slave to clear the pending relinquish and retry condition....The random masking period is preferably based on the residue count of a counter provided in the masking system (see col. 3, lines 17-22).

Thus, it would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Lau with the teaching of Chen to randomly mask connection request (REQ) in order to provide the one of the line card ((INGRESS)

LC1...LC14) an opportunity to access the ((EGRESS) LC1....LC14) and avoid the deadlock situation. Therefore, the combined system would have been enable for reducing congestion in network switching node.

4. In the claim 7, Lau et al. discloses an apparatus and method for reducing congestion in network switching node. A congestion mask that indicates which of a plurality of destination node ports in a network switching node are congested is generated and combined with a destination port field included in a packet in a multicast queue of the switching node to mask destination port designations in the destination port field that are indicated by the congestion mask to be congested if a drop eligibility field within the packet indicates that destination port designations are permitted to be masked (see abstract); comprising:

A system of controlling a data packet switching system (see switching fabric, figure 2) of the type having a memoryless cross-bar switch (SM) providing cyclic connections providing cyclic connection (a time interval called a connection cycle, see col. 3, lines 30-36) between ingress routers ((INGRESS) LC1.....LC14, see figure 1) and egress routers ((EGRESS) LC1....LC14) (see figure 1) under the control of a switch control arbiter (Cell Path Arbiter 39, see figure 4), the ingress routers ((INGRESS) LC1...LC14) providing incoming packet buffering on a virtual output queue (VOQ1...VOQ14) basis and being arranged to generate switch connection request when a virtual output queue contains a data packet (see col. 3, lines 55-60, arbitration logic is provided within the switching fabric 12 to arbitrate between the forwarding request from the different line card, granting some request and denying others), the system being characterised by

comprising: transmitting all the connection request except selected request to the switch control arbiter (see figure 8, col. 8, lines 14-38)

However, Lau et al. is silent to disclosing the masking unit randomly mask connection request (REQ).

See figure 3, Chen discloses a priority resolution and masking block 72 receive the request mask signal from deadlock detection and mask generator block 71. Priority resolution and masking block 72 also receives bus request signals (shown as busA_requests) from a master coupled to a first bus (bus A), as well as bus request (busB_request) signals and bus request enable signals (busB_request_enables) from master coupled to second (bus_B) (see col. 5, lines 1-10, figure 3); comprising:

the masking unit randomly mask connection request (REQ) (the random time mask provides the first master an opportunity to control the bus and access the slave to clear the pending relinquish and retry condition....The random masking period is preferably based on the residue count of a counter provided in the masking system (see col. 3, lines 17-22);

transmitting all the connection request except selected request to the switch control arbiter (see figure 3, col. 5, lines 1-10).

Thus, it would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Lau with the teaching of Chen to randomly mask connection request (REQ) in order to provide the one of the line card ((INGRESS) LC1...LC14) an opportunity to access the ((EGRESS) LC1....LC14) and avoid the

deadlock situation. Therefore, the combined system would have been enable for reducing congestion in network switching node.

Allowable Subject Matter

5. Claims 2-6, 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is an examiner's statement of reasons for allowance: the prior art (6625121, 5544332) of the record does not appear to teach or render obvious the claimed limitations in combination with the specific added limitations, recited from dependent claims 2, 8: "the masking unit being arranged to receive with each request an associated weight value (Wt), and to feed the weight values to the corresponding comparators © together with a stream of randomly generated values, the comparators © being arranged to produce respective random bit streams whose proportion of 1's to 0's is determined by the corresponding weight values (Wt), and masking unit being arranged to use each random bit stream for masking out the requests (REQ) from the corresponding virtual output queue (VOQ)".

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong ho whose telephone number is (571)272-3133. The examiner can normally be reached on Monday-Friday from 8:00AM-4:00PM.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chuong Ho
Examiner
Art Unit 2664

09/30/04